Please amend the claims as follows:

104. (Twice Amended) The method of claim [125] ~~123~~ 146 wherein said contacting further comprises contacting said sample with a polypeptide capable of forming a complex with the moiety A [and] , said polypeptide including a moiety which can be detected when said complex is formed.

105. (Twice Amended) The method of claim 104 wherein the moiety A of said compound [comprises] consists of biotin [and] or iminobiotin.

107. (Amended) The method of claim 104 wherein the moiety A is a hapten and said polypeptide is an antibody thereto.

108. (Amended) The method of claim 104 wherein the moiety A is a ligand.

113. (Twice Amended) A method of detecting a double-stranded polynucleotide duplex which includes a compound in accordance with Claim [125] ~~123~~ 146 which comprises contacting said polynucleotide duplex with a polypeptide capable of forming a complex therewith under suitable conditions as to form said complex, said polypeptide including a moiety which can be detected when said complex of said polynucleotide duplex and said polypeptide is formed, and detecting said complex.

114. (Amended) A method in accordance with claim 113 wherein the moiety A of said polynucleotide duplex [comprises] consists of biotin [and] or iminobiotin.

115. (Amended) A method in accordance with claim 113 wherein said polypeptide [comprises] is selected from the group consisting of avidin, streptavidin, and [IgG] anti-A immunoglobulin.

118. (Amended) A method in accordance with claim 113 wherein the moiety included in said polypeptide which can be detected is [a] fluorescent [dye], electron dense [reagent], or is an enzyme capable of [depositing an insoluble reaction product] reacting with a substrate to form a detectable reaction product.

R126

126. (Amended) The method of claim [125] ~~145~~ 146 wherein said target is a nucleic acid [sequence] derived from a living organism.

NE

R121

128. (Amended) The method of claim [125] ~~145~~ 146 wherein said sample is suspected of containing an etiological agent and said target nucleic acid [sequence] is naturally associated with said etiological agent.

R12

130. (Amended) The method of claim [125] ~~145~~ 146 wherein said sample comprises a [bacterium] microorganism suspected of containing a target nucleic acid [sequence] which imparts resistance to an antibiotic and wherein said compound comprises a polynucleotide complementary to the [sequence] nucleic acid of said [bacterium] microorganism which confers resistance to said antibiotic.

131. (Amended) The method of claim 130 wherein said [bacterium] microorganism is Streptococcus pyrogenes or Neisseria meningitidis and said antibiotic is penicillin.

132. (Amended) The method of claim 130 wherein said [bacterium] microorganism is Staphylococcus aureus, Candida albicans, Pseudomonas aeruginosa, Streptococcus pyrogenes, or Neisseria gonorrhoeae and said antibiotic is a tetracycline.

133. (Amended) The method of claim 130 wherein said [bacterium] microorganism is Mycobacterium tuberculosis and said antibiotic is an aminoglycoside.

R126

134. (Amended) The method of claim [125] ~~145~~ 146 wherein said sample is suspected of containing a target nucleic acid [sequence] associated with a genetic disorder and wherein said compound comprises a polynucleotide complementary to the [sequence] nucleic acid associated with said genetic disorder.

R126

135. (Amended) The method of claim [125] ~~145~~ 146 wherein said sample is suspected of containing a target nucleic acid [sequence] associated with thalassemia and wherein said compound comprises a polynucleotide complementary to the [sequence] nucleic acid which is absent in thalassemic subjects.

R126

136. (Amended) The method of claim [125] ~~145~~ 146 for chromosomal karyotyping which comprises contacting said sample with a series of said compounds which are complementary to a series of known genetic [sequences] nucleic acids located on chromosomes.

R126

137. (Amended) The method of claim [125] ~~145~~ 146 wherein said sample is suspected of containing a target polynucleotide which includes a terminal polynucleotide [sequence] poly A and wherein said compound comprises a modified poly U nucleotide [sequence] in which at least one uracil moiety has been modified

by [chemical addition at the 5' position of A] the attachment of the moiety A at the 5-position.

R126

141. (Amended) The method of claim [140] ~~146~~ 147 which comprises detecting malignant cells by detecting abnormal hormonal receptor sites associated therewith.

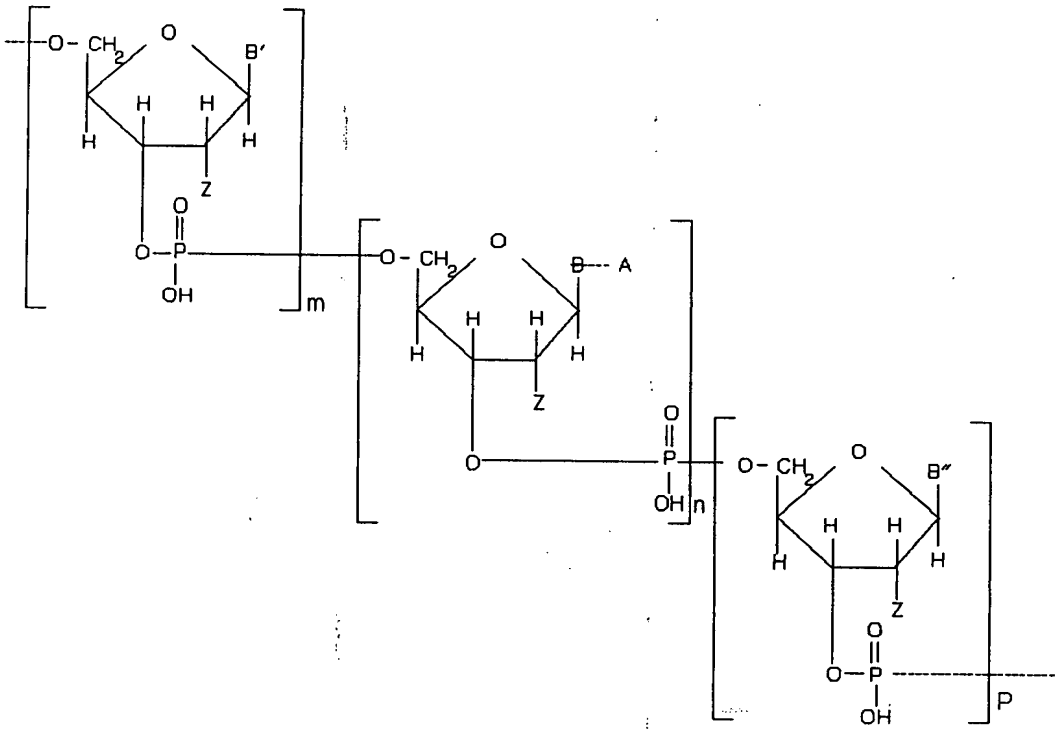
142. (Amended) The method of claim [125] ~~145~~ 146 wherein said sample is suspected of containing a nucleic acid [sequence] which codes for expression of a polypeptide diagnostic for a tumor cell and wherein said compound comprises a polynucleotide complementary to the messenger ribonucleic acid transcribed from a deoxyribonucleic acid [sequence] associated with the production of said polypeptide.

R126

Please add the following new claims:

146
R126 ~~145.~~ (New) A method of determining the presence or absence of a target nucleic acid in a sample which comprises the steps of

(a) contacting said sample with at least one compound comprising the structure:



wherein each of B, B', B" represents a purine, deazapurine, or pyrimidine moiety covalently bonded to the $C^{1'}$-position of the sugar moiety, provided that whenever B, B' or B" is purine or deazapurine, the sugar moiety is attached at the N^9-position of the purine or deazapurine, and whenever B, B' or B" is pyrimidine the sugar moiety is attached at the N^1-position of the pyrimidine;

wherein A represents at least one component of a signalling moiety capable of producing a detectable signal when

the compound is incorporated into a double-stranded ribonucleic or deoxyribonucleic acid duplex and comprises at least three carbon atoms;

wherein B and A are attached directly or through a linkage group, said linkage group not interfering substantially with the characteristic ability of B to hybridize with said target or of A to produce a detectable signal;

wherein if B is purine, A is attached to the 8-position thereof, if B is deazapurine, A is attached to the 7-position thereof, and if B is pyrimidine, A is attached to the 5-position thereof;

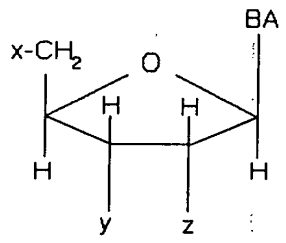
wherein m, n and p are integers, provided that m and p are not simultaneously 0 and provided further n is never 0; and

wherein z represents H- or HO-; and

(b) detecting any signal associated with said compounds hybridized to said target.

146. (New) A method for determining the presence or absence of cells having hormone receptor sites on the surfaces thereof in a sample which is suspected of containing cells having hormone receptor sites on the surfaces thereof, which method comprises the steps of:

(a) contacting said sample with a compound having the structure:



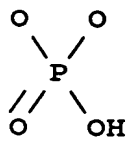
wherein B represents a purine, deazapurine, or pyrimidine moiety covalently bonded to the $C^{1'}$-position of the

sugar moiety, provided that when B is purine or deazapurine, it is attached at the N^9-position of the purine or deazapurine, and when B is pyrimidine, it is attached at the N^1-position;

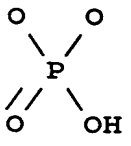
wherein A represents at least one component of a signalling moiety and comprises at least three carbon atoms;

wherein B and A are attached together directly or through a linkage group;

wherein if B is purine, A is attached to the 8-position of the purine, if B is deazapurine, A is attached to the 7-position of the deazapurine, and if B is pyrimidine, A is attached to the 5-position of the pyrimidine, and wherein either z is H- or HO- and x and y together form the moiety



or x is HO- and y and z together form the moiety



;

(b) disrupting said cells to produce cell surface fragments to which said compound is bound;

(c) separately recovering said cell surface fragments; and

(d) detecting said compound in said fragments so as to identify said hormone receptor sites.